12/31/12

MEMORANDUM FOR: Roger Lamoni
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National Weather Service, Western Region

FROM: Carl S Cerniglia Jr
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SUBJECT: 2012 Annual Fire Weather Report

The following report evaluates WFO Tucson's Fire Weather products and services in support of Southeast Arizona land management agencies and public safety partners in the 2012 calendar year. This report includes verification statistics for Fire Weather Watches and Red Flag Warnings; the number of spot forecasts issued; the number of IMET dispatches with the number of days out of the office; and information on fire weather teaching assignments and liaison activities.

Weather Synopsis:

Record heat ushered in 2012 and that was a theme that continued through the year. January and February generally had significantly warmer than normal highs with slightly cooler than normal low temperatures leaving the average warmer than normal. These warmer than normal averages occurred despite a period of significantly below normal temperatures the third week of February. The large diurnal temperature spread was the result of drier than normal conditions throughout the winter. For the first two months of the year there were only three significant precipitation producing systems, one in the middle of January, the middle of February and another the last day of the month. Overall the region received less than 50 percent of its normal rainfall through February.

The spring period of March through May continued the warmer and drier than normal trend. High temperatures were the prime reason for the warmer than normal average as lows remained normal or slightly below normal. The area experienced its first 90+ degree day at the end of March and its first 100+ degree day on the 22nd of April. In fact, as recorded at the Tucson International Airport, the second half of April was the 2nd warmest on record. The heat continued through May unabated. Dry conditions were also present through the spring with a significant lack of precipitation. There were only two notable precipitation events, one the middle of March and a second on the 11th of April. Outside a few small areas with 50 to 80 percent of normal rainfall, most of southeast Arizona remained below 50 percent of normal rainfall. Another indication of the level of dryness was the dewpoint temperatures which were significantly below normal for the month of May, the third year in a row with below normal dewpoints. Of interest was a rare Haboob that struck the greater Tucson area on the 9th of May due to mostly dry thunderstorms that generated 45 to 55 mph wind gusts.

The heat continued into the early part of the summer with June and August ranking in the top 5 warmest months on record. July was the first cooler than normal month this year in part due to a very active monsoon which resulted in significantly above normal precipitation for southeast Arizona during July and August. The most notable event during the summer occurred from the 14th to the 16th of July with severe thunderstorms and heavy rain leading to flash flooding impacting the area on the 15th and 16th.

The monsoon showers continued into the first half of September then little if any rain occurred until the second week of November where a pair of weather systems produced widespread valley rains and mountain snows from the 8th through the 11th of November. Thanks to a series of storm systems during the latter half of December resulting in valley rains and mountain snows, December ended up being only the second month this year with above normal precipitation. However, the year remained significantly

below normal precipitation wise overall. Temperatures were near normal through September then returned to above normal levels from October through the first half of December then fell back to normal or a bit below normal levels for the remainder of the year. Temperature wise, southeast Arizona experienced one of its warmest years ever. As recorded at the Tucson International Airport, the yearly average of 71.4 degrees tied the 1989 average which was the previous warmest year on record.

Fire Information

Despite the exceptionally hot and dry weather and continued drought conditions through 2012, the year ended up being a relatively quiet fire year across southeast Arizona. None of the wildfires that did occur required a Type I or Type II Incident Management Team as all the fires were handled by the local units. As a result there were no IMET dispatches within the WFO Tucson county warning area. A breakdown of the acreage burned by type within the Tucson CWA follows;

Wildfire	42,816.36 acres
Prescribed	8,274.30 acres
Total	51,090.66 acres

Fire Weather Watch/Red Flag Warning Verification:

There were fewer warning events this year when compared to 2011 and of those several were marginal events that didn't quite meet the areal coverage necessary to verify the warnings. This showed itself in the FAR, mainly in zone 146. There were no missed events this year although there was one zero lead time event.

For an event to occur, the fire danger rating, minimum relative humidity, and wind speed values (sustained and/or gusts) must have met the following criteria listed below (for 3 or more hours) and published in the 2012 Southwest Area Operations Plan.

Fire Danger Rating:	High or greater
Minimum Relative Humidity:	15 percent or less
Sustained Wind Speed (ASOS):	25 mph or greater
Sustained Wind Speed (RAWS):	20 mph or greater
Wind Speed Gusts (ASOS & RAWS):	35 mph or greater

Red Flag Raw Data:

Zone	Issued	Verified	Unverified	Missed Events
146	10	1	9	0
147	8	7	1	0
148	13	8	5	0
District	31	16	15	0

Red Flag Zone Verification Statistics:

Zone	POD	FAR	CSI	Avg. Lead Time	# Issued
146	1.00	0.90	0.10	32.00 Hours	10
147	1.00	0.13	0.87	30.21 Hours	8
148	1.00	0.38	0.62	31.19 Hours	13
District	1.00	0.48	0.52	30.81 Hours	31

Fire Weather Watch Zone Verification Statistics:

Zone	Issued	Upgraded to RFW	Verified	Avg. Lead Time
146	8	7	1	56.50 Hours
147	5	5	4	52.13 Hours
148	9	9	6	51.67 Hours
District	22	21	11	52.18 Hours

2012 Spot Forecasts:

This year, the Tucson office prepared the greatest number of Spot forecasts since data has been compiled locally in 2003. While the number of Spot forecasts prepared for wildfire activity increased, the biggest jump was requests made for prescribed fires where the office prepared more than double the number of forecasts made the previous year.

Zone	Wildfires	Prescribed	Other	Total
146	67	30	0	97
147	8	9	0	17
148	46	41	1	88
Other*	4	0	0	4
District	125	80	1	206

* Forecasts generated for locations just outside our CWA

2012 IMET Dispatches

There were no IMET dispatches from the Tucson WFO for the 2012 calendar year.

IMET: Steven M. Reedy
Days out of the office: 0
Number of Fires: 0

Training and Liaison Activities in 2012:

There were 2 days spent in 2012 in direct support of fire weather training and/or liaison activities. The table below lists the assignments.

Course	Location	Dates	Instructor
S290	Tombstone, AZ	1/8 to 1/8	Steven M. Reedy
S290	Tombstone, AZ	12/8 to 12/9	Carl S. Cerniglia Jr